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# MILITARY STANDARD

Information Technology  
DoD Standardized Profiles AMH1n(D)  
Message Handling Systems (MHS)  
Common DoD Messaging

## Part 3: Requirements for Message Transfer (P1)



AMSC N/A

AREA DCPS

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## **Foreword**

This military standard is approved for use by all Departments and Agencies of the Department of Defense (DoD).

Beneficial comments (recommendations, additions, deletions) and any pertinent data that may be of use in improving this MIL-STD should be addressed to the:

Joint Interoperability and Engineering Organization (JIEO)  
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Building 286  
Fort Monmouth, New Jersey 07703-5613

by using the Standardization Document Improvement Proposal (DD Form 1426) appearing at the end of this MIL-STD or by memorandum.

This DoD Standardized Profile (DSP) is a functional standard produced by the Data Communications Protocol Standards (DCPS) Technical Management Panel (DTMP) Working Group 2 on Upper Layers. DTMP functional standards are functional groupings of base standards. Referenced base standards may be commercial, DoD or de facto standards, although International Standards (produced by ISO, CCITT, and other bodies) are preferred when possible.

This document forms part of a multipart DSP for MHS covering DoD Messaging requirements AMH1n(D). It is in addition to the current Taxonomy and Framework for International Standardized Profiles.

The current technical content of this document has been derived wherever possible from ISO/IEC ISP 10611. However, this document is based on DoD requirements and differences between the content of this document and ISO/IEC ISP 10611 may exist.

This DSP must be combined with the multipart ISP identified in ISO/IEC TR 10000-2 as "AMH1, Message Handling Systems - Common Messaging" (see also ISO/IEC TR 10000-1, 8.2 for the definition of multipart ISPs). For DoD acquisition purposes, where such differences exist, this DSP shall be the controlling document.

This part of MIL-STD 2045-17501 contains two normative annexes.

The Preparing Activity for this standard is the Data Communication Protocol Standards Technical Management Panel (DTMP). The custodians for the document are identified in the Defense Standardization Program, "Standardization Directory (SD-1)" and are classified in the Federal Supply Classification (FSC) system under Data Communication Protocol Standards (DCPS). Additional information can be obtained from:

Joint Interoperability and Engineering Organization  
ATTN: DTMP Chairman  
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## **Introduction**

This DoD Standardized Profile (DSP) is defined within the context of functional standardization, in accordance with the principles specified by ISO/IEC TR 10000, "Framework and Taxonomy of International Standardized Profiles" and MIL-HDBK-829. The context of functional standardization is one part of the overall field of Information Technology (IT) standardization activities - covering base standards, profiles, and registration mechanisms. A profile defines a combination of base standards that collectively perform a specific well-defined IT function. Profiles standardize the use of options and other variations in the base standards to promote system interoperability and to provide a basis for the development of uniform, internationally recognized system tests.

One of the most important roles for a DSP is to serve as the basis for the development of recognized tests. DSPs also guide implementors in developing systems that fit the needs of the US Department of Defense (DoD). DSPs are produced not simply to 'legitimize' a particular choice of base standards and options, but to promote real system interoperability. The development and widespread acceptance of tests based on this and other DSPs is crucial to the successful realization of this goal.

This part of MIL-STD 2045-17501 covers DoD requirements for Message Transfer (P1). It specifies any additional P1 support to that specified in AMH1n and defines conformance requirements for an MTA which supports message transfer with respect to support of P1 and associated functionality (requiring conformance to AMH11 and by reference to the common DoD specifications in part 1).

This part of MIL-STD 2045-17501 contains two normative annexes:

Annex A DSPICS Requirements List

Annex B Amendments and corrigenda

# **Information technology - DoD Standardized Profiles AMH11(D) - Message Handling Systems - Common DoD Messaging**

## **Part 3 : Messaging Requirements for Message Transfer (P1)**

### **1 Scope**

#### **1.1 General**

This part of MIL-STD 2045-17501 covers DoD requirements for Message Transfer Protocol to support an DoD environment. It specifies any additional P1 support to that specified in AMH1n and defines conformance requirements for an MTA which supports message transfer.

#### **1.2 Position within the taxonomy**

This part of MIL-STD 2045-17501 is the third part of a multipart DSP for AMH1n(D) DoD Message Handling Systems - Common DoD Messaging. The multipart DSP consists of the following parts:

Part 1 - MHS service support

Part 2 - Specification of ROSE, RTSE, ACSE, Presentation and Session Protocols for use by DoD MHS

Part 3 - AMH11(D) - Requirements for Message Transfer (P1)

Part 4 - AMH12(D) - Requirements for MTS Access (P3)

Part 5 - AMH13(D) - Requirements for MS Access (P7)

This DSP must be combined with the multipart ISP identified in ISO/IEC TR 10000-2 as "AMH1, Message Handling Systems - Common Messaging" (see also ISO/IEC TR 10000-1, 8.2 for the definition of multipart ISPs).

The multipart AMH1 ISP consists of the following parts:

Part 1 - MHS Service Support

Part 2 - Specification of ROSE, RTSE, ACSE, Presentation and Session Protocols for use by MHS

Part 3 - AMH11 - Message Transfer (P1)

Part 4 - AMH12 - MTS Access (P3)

Part 5 - AMH13 - MS Access (P7)

It may be combined with any DoD approved T-Profiles (see ISO/IEC TR 10000) specifying the OSI connection-mode Transport service.

## 1.3 Scenario

The model used is one of two or more MTAs intercommunicating within a Message Transfer System (MTS) using the P1 protocol, as shown in figure 1.



**Figure 1 - AMH11(D) scenario**

The AMH11(D) profile covers all aspects of the MTA Abstract Service, as defined in clause 12 of ISO/IEC 10021-4 when realized using the P1 protocol and in support of DoD Messaging.

## 2 Normative references

The following documents contain provisions that, through reference in this text, constitute provisions of this part of MIL-STD 2045-17501. At the time of publication, the editions indicated were valid. All documents are subject to revision, and parties to agreements based on this part of MIL-STD 2045-17501 are warned against automatically applying any more recent editions of the documents listed below, since the nature of references made by DSPs to such documents is that they may be specific to a particular edition. Members of IEC and ISO maintain registers of currently valid International Standards and ISPs, and CCITT maintains published editions of its current Recommendations.

Amendments and corrigenda to the base standards referenced are listed in annex B.

NOTE - References in the body of this part of MIL-STD 2045-17501 to specific clauses of ISO/IEC documents shall be considered to refer also to the corresponding clauses of the equivalent CCITT Recommendations, as noted below, unless otherwise stated.

### Government Documents:

MIL-HDBK 829, Volumes 1 , *Mil-Std 2045 Series Documentation*, 23 April 1993

MIL-HDBK 829, Volumes 2 , *Guidelines for Data Communications Protocol Standards (DCPS) DoD Standardized Profiles (DSPs)*, 23 April 1993

DoD activities may obtain copies of DoD directives through their own publication channels or from the DoD Single Stock Point, Standardization Document Order Desk, 700 Robbins Avenue, Building 4D, Philadelphia, PA 19111-5094. Other federal agencies and the public may purchase copies from the U.S. Department of Commerce, National Technical Information Service, 5285 Port Royal Road, Springfield, VA 22161.

### International Standards Organization (ISO)

ISO 7498-2: 1990, *Information processing systems - Open Systems Interconnection - Basic Reference Model - Part 2: Security Architecture*.

ISO/IEC 9594: 1990, *Information technology - The Directory*. [see also CCITT Recommendations X.5xx(1988)]

ISO/IEC 9594-8: 1990, *Information technology - The Directory - Part 8: Authentication framework*. [see also CCITT Recommendation X.509(1988)]

ISO/IEC TR 10000-1: 1990, *Information technology - Framework and taxonomy of International Standardized Profiles - Part 1: Framework*.

ISO/IEC TR 10000-2: 1990, *Information technology - Framework and taxonomy of International Standardized Profiles - Part 2: Taxonomy*.

ISO/IEC 10021-1: 1990, *Information technology - Text Communication - Message-Oriented Text Interchange Systems (MOTIS) - Part 1: Service Overview*. [see also CCITT Recommendation X.400(1988)]

ISO/IEC 10021-2: 1990, *Information technology - Text Communication - Message-Oriented Text Interchange Systems (MOTIS) - Part 2: Overall Architecture*. [see also CCITT Recommendation X.402(1988)]

ISO/IEC 10021-4: 1990, *Information technology - Text Communication - Message-Oriented Text Interchange Systems (MOTIS) - Part 4: Message Transfer System: Abstract Service Definition and Procedures*. [see also CCITT Recommendation X.411(1988)]

ISO/IEC 10021-7: 1990, *Information technology - Text Communication - Message-Oriented Text Interchange Systems (MOTIS) - Part 7: Interpersonal messaging system*. [see also CCITT Recommendation X.420(1988)]

ISO/IEC Draft pDISP 10611 parts 1-5, September 1992, *Information technology - International Standardized Profiles AMH1n - Message Handling Systems - Common Messaging*

(Application for copies of these documents should be addressed to the American National Standards Institute, 11 West 42nd Street, NY, NY 10036 or to ISO, Van Demonstrate 94, 1013 CN Amsterdam, Netherlands.)

### 3 Definitions

For the purposes of this part of MIL-STD 2045-17501, the following definitions apply.

Terms used in this part of MIL-STD 2045-17501 are defined in the referenced base standards.

In addition, the following terms are defined:

#### 3.1 General

**Basic requirement** : an Element of Service, protocol element, procedural element or other identifiable feature specified in the base standards which is required to be supported by all MHS implementations.

**Functional group** : a specification of one or more related Elements of Service, protocol elements, procedural elements or other identifiable features specified in the base standards which together support a significant optional area of MHS functionality.

NOTE - A functional group can cover any combination of MHS features specified in the base standards for which the effect of implementation can be determined at an external interface - i.e., via a communications protocol (other forms of exposed interface are outside the scope of this version of MIL-STD 2045-17501).

#### 3.2 Support classification

To specify the support level of arguments, results and other protocol features for this part of MIL-STD 2045-17501, the following terminology is defined.

##### 3.2.1 Static capability

To following classifications are used in this part of MIL-STD 2045-17501 to specify static conformance requirements - i.e., capability.

In the case of protocol elements, the classification is relative to that of the containing element, if any. Where the constituent elements of a non-primitive element are not individually specified, then each shall be considered to have the classification of that element. Where the range of values to be supported for an element is not specified, then all values defined in the DoD base standards shall be supported.

**mandatory full support (m)** : the element or feature shall be fully supported. An implementation shall be able to generate the element, and/or receive the element and perform all associated procedures (i.e., implying the ability to handle both the syntax and semantics of the element) as relevant, as specified in the DoD base standards. Where support for origination (generation) and reception are not distinguished, then both capabilities shall be assumed.

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**mandatory minimal support (m-)** : the element shall be supported. However, an implementation is not required to be able to take any explicit action based on the semantics of such an element. An implementation is not required to be able to originate such an element.

NOTE - The m- classification may not be needed in the case of a content type protocol. The definition is kept here until a final decision can be reached.

**optional support (o)** : an implementation is not required to support the element. If support is claimed, the element shall be treated as if it were specified as mandatory support. If support for origination is not claimed, then the element is not generated. If support for reception is not claimed, then an implementation may ignore the element on delivery.

**conditional support (c)** : the element shall be supported under the conditions specified in this part of MIL-STD 2045-17501. If these conditions are met, the element shall be treated as if it were specified as mandatory support. If these conditions are not met, the element shall be treated as if it were specified as optional support (unless otherwise stated).

**out of scope (i)** : the element is outside the scope of this part of MIL-STD 2045-17501 - i.e., it will not be the subject of a MIL-STD conformance test.

**not applicable (-)** : the element is not applicable in the particular context in which this classification is used.

### 3.2.2 Dynamic behavior

The above classifications are used in this part of MIL-STD 2045-17501 to specify static conformance requirements (i.e., capability); dynamic conformance requirements (i.e., behavior) are as specified in the DoD base standards. However, in a few cases it has been necessary to specify additional dynamic conformance requirements in this profile. These are specified using a second classification code for an element as follows.

**required (r)** : the element shall always be present. An implementation shall ensure that the element is always generated or otherwise used, as appropriate. Absence of the element on reception shall result in termination or rejection of the communication with an appropriate error indication as specified in the DoD base standards.

**excluded (x)** : the element shall never be present. An implementation shall ensure that the element is never generated or otherwise used, as appropriate. Presence of the element on reception shall result in termination or rejection of the communication with an appropriate error indication as specified in the DoD base standards.

NOTE - It is recognized that some implementation may be required to exclude even a static capability in such cases, but such considerations are outside the scope of this profile. Any elements which are specified as excluded (x) in this profile are thus also specified as out of scope (i) in terms of static capability.

## 4 Abbreviations

84IW	84 Interworking
ACSE	Association Control Service Element
AMH	Application Message Handling
API	Application Programming Interface
ASN.1	Abstract Syntax Notation One
CCITT	International Telegraph and Telephone Consultative Committee
CV	Conversion
DoD	Department of Defense
DIR	Use of Directory
DL	Distribution List
DSP	DoD Standardized Profile
DSPICS	DSP Implementation Conformance Statement
EoS	Element of Service
FG	Functional group
IEC	International Electrotechnical Commission
ISO	International Standards Organization
ISP	International Standardized Profile
LD	Latest Delivery
MHS	Message Handling Systems
MOTIS	Message Oriented Text Interchange System
MS	Message Store
OSI	Open Systems Interconnection
PD	Physical Delivery
PDAU	Physical Delivery Access Unit
RED	Redirection
RoC	Return of Contents
ROSE	Remote Operations Service Element
RTSE	Reliable Transfer Service Element
SEC	Security
UA	User Agent

Support level for protocol elements and features (see 3.2):

m	mandatory full support
m-	mandatory minimal support
o	optional support
c	conditional support
i	out of scope
—	not applicable
r	required, dynamically mandatory
x	excluded, dynamically prohibited

## 5 Conformance

This part of MIL-STD 2045-17501 states requirements upon implementations to achieve interworking. A claim of conformance to this part of MIL-STD 2045-17501 is a claim that all requirements in the relevant base standards are satisfied, and that all requirements in the following clauses and in annex A of this part of MIL-STD 2045-17501 are satisfied. Annex A states the relationship between these requirements and those of the base standards.

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### **5.1 Conformance statement**

For each implementation claiming conformance to profile AMH11(D) as specified in this part of MIL-STD 2045-17501, a DSPICS shall be made available stating support or non-support of each option identified in this part of MIL-STD 2045-17501.

The scope of conformance to profile AMH11(D) is restricted to MTAs. A claim of conformance to AMH11(D) shall state mandatory support of profile AMH111 while support of profile AMH112 is optional (jointly referenced as AMH11 in this part of MIL-STD 2045-17501 where a distinction is necessary).

### **5.2 MHS conformance**

This part of MIL-STD 2045-17501 specifies implementation options or selections such that conformant implementations will satisfy the conformance requirements of ISO/IEC 10021 and/or the CCITT X.400 Recommendations.

Note - The ISO/IEC and CCITT conformance requirements currently differ with respect to support of P1 application contexts, as described in annex D of ISO/IEC 10021-6 and CCITT Recommendation X.419 (1988). However, the 1992 CCITT X.400 Recommendations will require support of all P1 application contexts.

Implementations conforming to profile AMH11(D) as specified in this part of MIL-STD 2045-17501 shall implement all the mandatory support (m or m-) features identified as basic requirements in annex A and shall state which optional support (o) features are implemented. They shall also support corresponding MHS Elements of Service and associated procedures as specified in MIL-STD 2045-17501-1, as appropriate to the scope of this profile.

Implementations conforming to profile AMH11(D) as specified in this part of MIL-STD 2045-17501 shall state whether or not they support any of the optional functional groups as specified in MIL-STD 2045-17501-1. Implementations conforming to profile AMH112 shall support the 84 Interworking functional group. For each functional group for which support is claimed, an implementation shall implement all the mandatory support features (m or m-) identified for that functional group in annex A and shall state which optional support (o) features are implemented. They shall also support corresponding MHS Elements of Service and associated procedures as specified in MIL-STD 2045-17501-1, as appropriate to the scope of this profile.

Implementations conforming to profile AMH11(D) as specified in this part of MIL-STD 2045-17501 shall state the P1 application context(s) for which conformance is claimed. Implementations conforming to profile AMH112 shall support the P1 mts-transfer-protocol and mts-transfer-protocol-1984 application contexts. Implementations conforming to profile AMH111 which also support the P1 mts-transfer-protocol-1984 application context shall support the 84 Interworking functional group.

### **5.3 Underlying layers conformance**

Implementations conforming to profile AMH11(D) as specified in this part of MIL-STD 2045-17501 shall also conform to MIL-STD 2045-17501-1, in accordance with the P1 application context(s) supported.

### **5.4 Routing conformance**

Implementations conforming to this part of MIL-STD 2045-17501 shall be able to at a minimum route on the following O/R attributes: country-name, administrative-domain-name, private-domain-name, organization-name, numeric-user-identifier, and organizational-unit-names.

## **Annex A**

### **(normative)**

#### **DSPICS Requirements List**

In the event of a discrepancy becoming apparent in the body of this part of 2045-17501 and the tables in this annex, this annex is to take precedence.

This annex specifies the support constraints and characteristics of this part of MIL-STD 2045-17501 on what shall or may appear in the implementation columns of a DSPICS. Such requirements are additional to those specified in annex A of ISO/IEC 10611-3 (reference numbers correspond to items in that annex).

Clause A.1 specifies the basic requirements for conformance to profile AMH11(D). Clause A.2 specifies additional requirements to those specified in A.1 for each of the optional functional groups if conformance to such a functional group is claimed.

In each table, the "Base" column reflects the level of support required for conformance to the base standard and the "Profile" column reflects the level of support required by this DSP (using the classification and notation defined in 3.2). The supplier of an implementation for which conformance to profile AMH11(D) is claimed should complete the Support column of the tables in annex A of ISO/IEC ISP 10611-3 in accordance with the requirements contained therein together with any additional requirements in this annex.

## **A.1 Basic requirements**

The following are additional requirements beyond those stated in ISO/IEC 10611-3.

### **A.1.1 Initiator/responder capability**

No additional requirements.

### **A.1.2 Supported application contexts**

Conformance to AMH111 is mandatory.

### **A.1.3 PDUs and operations**

#### **A.1.3.1 PDUs**

Ref	PDU	Base	Profile	Support	Notes/References
3	probe	m	x1		

1 Note: Reception of a Probe at the MTA will be logged as a security violation and no delivery or non-delivery report will be returned.

### **A.1.3 PDUs and operations**

#### **A.1.4.2 Message PDU parameters**

Ref	Element	Base	Profile	Support	Notes/References
1.1.6	priority	m	mr		

### **A.1.5 Common data types**

No additional requirements.

### **A.1.6 Extension data types**

No additional requirements.

### **A.1.7 O/R names**

No additional requirements.

## **A.2 Functional groups**

### **A.2.1 Mandatory functional groups**

The following functional groups that are optional in ISO/IEC 10611-3, are mandatory in this profile as specified in this part of MIL-STD 2045-17501. There are no additional requirements to those specified for support of these functional groups.

### **A.2.1.1 Redirection (RED)**

There are no additional requirements to those specified for the Common Messaging RED FG in annex A.2.4 of ISO/IEC ISP 10611-3.

### **A.2.1.2 Latest Delivery (LD)**

There are no additional requirements to those specified for the Common Messaging LD FG in annex A.2.5 of ISO/IEC ISP 10611-3.

### **A.2.1.3 Use of Directory (DIR)**

There are no additional requirements to those specified for the Common Messaging DIR FG in annex A.2.8 of ISO/IEC ISP 10611-3.

## **A.2.2 Optional functional groups**

The following requirements are additional to those specified in A.1 if support of the optional functional group is claimed.

### **A.2.2.1 Security (SEC)**

There are no additional requirements to those specified for the Common Messaging SEC FG in annex A.2.1 of ISO/IEC ISP 10611-3.

### **A.2.2.2 Physical Delivery (PD)**

There are no additional requirements to those specified for the Common Messaging PD FG in annex A.2.2 of ISO/IEC ISP 10611-3.

### **A.2.2.3 Conversion (CV)**

There are no additional requirements to those specified for the Common Messaging CV FG in annex A.2.3 of ISO/IEC ISP 10611-3.

### **A.2.2.4 Distribution List (DL)**

There are no additional requirements to those specified for the Common Messaging DL FG in annex A.2.7 of ISO/IEC ISP 10611-3.

## **A.2.3 Prohibited functional groups**

The following functional groups that are optional in ISO/IEC 10611-3, are prohibited in this profile as specified in this part of MIL-STD 2045-17501.

### **A.2.3.1 Return of Contents (RoC)**

### **A.3 Additional Information**

#### **A.3.1 Routing Capability**

<b>Ref</b>	<b>O/R Address Attribute</b>	<b>Routable (Y/N)</b>	<b>Comments</b>
1	country-name	Y	
2	administrative-domain-name	Y	
5	private-domain-name	Y	
6	organization-name	Y	
7	numeric-user-identifier	Y	
9	organizational-unit-name	Y	

## Annex B

### (normative)

#### Amendments and corrigenda

International Standards are subject to constant review and revision by the ISO/IEC Technical Committees concerned. The following amendments and corrigenda are approved by ISO/IEC JTC1 and are considered as normative references in this part of MIL-STD 2045-17501.

NOTE - Corresponding corrigenda to the equivalent CCITT Recommendations are contained in the joint CCITT/ISO MHS Implementor's Guide Version 8.

#### MOTIS

ISO/IEC 10021-1/Cor.1:1991  
ISO/IEC 10021-1/Cor.2:1991  
ISO/IEC 10021-1/Cor.3:1992  
ISO/IEC 10021-1/Cor.4:1992  
ISO/IEC 10021-2/Cor.1:1991  
ISO/IEC 10021-2/Cor.2:1991  
ISO/IEC 10021-2/Cor.3:1992  
ISO/IEC 10021-2/Cor.4:1992  
ISO/IEC 10021-4/Cor.1:1991  
ISO/IEC 10021-4/Cor.2:1991  
ISO/IEC 10021-4/Cor.3:1992  
ISO/IEC 10021-4/Cor.4:1992  
ISO/IEC 10021-6/Cor.1:1991  
ISO/IEC 10021-6/Cor.2:1991  
ISO/IEC 10021-6/Cor.3:1992  
ISO/IEC 10021-6/Cor.4:1992